



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/630,915	08/02/2000	Monsieur Bernard Bidet	33396-070337.0205	7905

21003 7590 11/07/2003

BAKER & BOTTS  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
----------

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 11/07/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

CLO 17

**Office Action Summary**

Application No.

09/630,915

Applicant(s)

BIDET, MONSIEUR BERNARD

Examiner

Justin R Fischer

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☒ Interview Summary (PTO-413) Paper No(s). 16.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.                      6) ☐ Other:

### **DETAILED ACTION**

1. In light of applicant's arguments in Paper Number 15, the final rejection has been withdrawn and a new set of rejections has been included.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 6, 8-11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sueyoshi (JP 07237405, newly cited) and further in view of Beers (US 5,491,196, newly cited) and Carter (US 5,807,918, newly cited). As best depicted in Figure 3, Sueyoshi discloses a tire construction in which an intermediate reinforcing layer or insulation rubber layer G is disposed between an inner elastomeric layer or innerliner 6 and a carcass ply 3, wherein said insulation rubber layer is formed of a mixture of polyisoprene rubber and a diene rubber (Paragraphs 9 and 10 of attached machine translation). In particular, Sueyoshi suggests that the diene rubber can be styrene butadiene rubber (copolymer of one or more conjugated diene monomers and one or more vinyl aromatic monomers). Although Sueyoshi fails to describe the specific styrene butadiene being used, one of ordinary skill in the art at the time of the invention would have found it obvious to use a solution polymerized styrene butadiene satisfying the quantitative relationships of the claimed invention since it represents a plurality of

Art Unit: 1733

well known styrene butadiene rubbers that are commonly used in similar innerliner assemblies, as shown for example by Beers (Table in Columns 5 and 6), there being no conclusive showing of unexpected results to establish a criticality for the specific styrene butadiene required by the claimed invention. Regarding the carbon black content, the single embodiment of Sueyoshi includes HAF carbon black in an amount of 50 phr (Paragraph 18). While Sueyoshi fails to include the properties of the carbon black, one of ordinary skill in the art at the time of the invention would have recognized HAF carbon black as having properties that satisfied the broad quantitative limitations of the claimed invention, as evidenced by Carter (Table 1). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include carbon black having the claimed oil absorption and surface area since the parameters define well known and conventional carbon blacks used in tire components.

Regarding the tire construction of Sueyoshi, the reference is directed to a pneumatic tire construction that can be used for truck/buses or heavy loads (Paragraph 15). Also, the reference indicates that the carcass ply can be formed of steel cords (Paragraph 9). It is particularly noted that steel cords are extensively used in heavy load tires due to their high strength characteristics.

With respect to the quantitative limitations of the styrene butadiene, as stated above, applicant fails to provide a conclusive showing of unexpected results to establish a criticality for a styrene butadiene as defined by the claimed invention. The results of Tables 1 and 2 evidence the benefits of using a mixture of natural rubber and the claimed styrene butadiene (SBR A) as compared to solely using natural rubber or the

Art Unit: 1733

claimed styrene butadiene. The results, however, do not compare the mixture of Tables 1 and 2 with a mixture formed of natural rubber and a styrene butadiene that does not satisfy the limitations of the claimed invention. Regarding Tables 3 and 4, while SBR B does not satisfy the limitations defined by claim 2, a comparison between Examples 8-10 is not persuasive in establishing a criticality for the claimed SBR. In particular, the amount of natural rubber, the type of carbon black, and the amount of zinc oxide is significantly varied between examples such that it is unclear why the benefits are realized.

Regarding claim 6, Sueyoshi includes paraphenylene diamine in an amount of 1 phr (Paragraph 18).

With respect to claim 8, the composition of Sueyoshi includes 2 phr of stearic acid. In this instance, one of ordinary skill in the art at the time of the invention would have readily appreciated the inclusion of stearic acid in slightly smaller amounts. It is well known in the tire industry that such additives are commonly added in a small amount that generally ranges between 0 and 2 or 3 phr. The example of Sueyoshi is only exemplary and as such, one of ordinary skill in the art at the time of the invention would have found it obvious to use stearic acid in amount less than 2 phr.

Regarding claim 9, the composition of Sueyoshi includes 5 phr of zinc oxide.

With respect to claim 10, the composition of Sueyoshi includes 5 phr of sulfur (Paragraph 18).

Regarding claim 11, the intermediate reinforcement layer of Sueyoshi has a thickness of 2 millimeters (Paragraph 15).

Art Unit: 1733

With respect to claim 14, as previously stated, it is well known in the tire industry to use solution polymerized styrene butadiene satisfying the quantitative relationships of the claimed invention. One of ordinary skill in the art at the time of the invention would have expected the copolymer to be initially formed and then mixed or thermochemcially worked with the polyisoprene rubber as is commonly practiced when forming a mixture.

4. Claims 1, 2, 6-11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hattori (JP 10297209, newly cited) and further in view of Beers and Carter. As best depicted in Figure 2, Hattori is directed to a pneumatic tire construction for heavy loads comprising an innerliner 5, a carcass ply 4 formed of steel reinforcing elements, and an intermediate reinforcement layer 6a disposed between said innerliner and said carcass, wherein said layer 6a is a blend of natural rubber and an additional diene rubber, such as styrene butadiene rubber (Paragraph 6). Although Hattori fails to describe the specific styrene butadiene being used, one of ordinary skill in the art at the time of the invention would have found it obvious to use a solution polymerized styrene butadiene satisfying the quantitative relationships of the claimed invention since it represents a plurality of well known styrene butadiene rubbers that are commonly used in similar innerliner assemblies, as shown for example by Beers (Table in Columns 5 and 6), there being no conclusive showing of unexpected results to establish a criticality for the specific styrene butadiene required by the claimed invention. Regarding the carbon black content, Hattori suggests the use of multiple carbon blacks, such as HAF and FEF (Paragraph 7), in an amount between 40 and 65 phr. One of ordinary skill in the art at the time of the invention would have recognized the well known carbon black

Art Unit: 1733

fillers disclosed by Hattori (HAF and FEF) as having properties that satisfied the broad quantitative limitation of the claimed invention. For example, Table 1 of Carter suggests common properties for HAF carbon black that satisfy the quantitative relationship of the claimed invention. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include carbon black having the claimed oil absorption and surface area since the parameters define well known and conventional carbon blacks used in tire components.

With respect to the quantitative limitations of the styrene butadiene, as stated above, applicant fails to provide a conclusive showing of unexpected results to establish a criticality for a styrene butadiene as defined by the claimed invention. The results of Tables 1 and 2 evidence the benefits of using a mixture of natural rubber and the claimed styrene butadiene (SBR A) as compared to solely using natural rubber or the claimed styrene butadiene. The results, however, do not compare the mixture of Tables 1 and 2 with a mixture formed of natural rubber and a styrene butadiene that does not satisfy the limitations of the claimed invention. Regarding Tables 3 and 4, while SBR B does not satisfy the limitations defined by claim 2, a comparison between Examples 8-10 is not persuasive in establishing a criticality for the claimed SBR. In particular, the amount of natural rubber, the type of carbon black, and the amount of zinc oxide is significantly varied between examples such that it is unclear why the benefits are realized.

Regarding claim 2, the natural rubber suggested by Hattori would have been recognized by one of ordinary skill in the art at the time of the invention as having an

Art Unit: 1733

extremely high cis 1,4 bond content (90-100%), and in particular well above 80%, as is common in natural rubber.

With respect to claim 6, Hattori includes an antioxidant in an amount of 2 phr. Although the reference fails to expressly suggest paraphenylene diamine (PPD), said diamine is a well recognized antioxidant that is extensively used in a wide variety of tire components. As such, one of ordinary skill in the art at the time of the invention would have readily appreciated the use of PPD as the specific antioxidant in Hattori.

Regarding claim 7, Hattori suggests the use of a cobalt salt in an amount between 0.1 and 2 phr (Paragraph 6).

With respect to claim 8, the composition of Hattori includes 2 phr of stearic acid (Paragraph 10). In this instance, one of ordinary skill in the art at the time of the invention would have readily appreciated the inclusion of stearic acid in slightly smaller amounts. It is well known in the tire industry that such additives are commonly added in a small amount that generally ranges between 0 and 2 or 3 phr. The example of Hattori is only exemplary and as such, one of ordinary skill in the art at the time of the invention would have found it obvious to use stearic acid in amount less than 2 phr.

Regarding claim 9, zinc oxide is included in an amount of 6 phr (Paragraph 10).

With respect to claim 10, sulfur is included in an amount between 4 and 7 phr (Paragraph 7).

Regarding claim 11, Hattori suggests a thickness for the rubber layer a between 0.5 and 1.5 phr (Paragraph 9).



Art Unit: 1733

With respect to claim 14, as previously stated, it is well known in the tire industry to use solution polymerized styrene butadiene satisfying the quantitative relationships of the claimed invention. One of ordinary skill in the art at the time of the invention would have expected the copolymer to be initially formed and then mixed or thermochemcially worked with the polyisoprene rubber as is commonly practiced when forming a mixture.

5. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of (a) Sueyoshi, Beers, and Carter or (b) Hattori, Beers, and Carter as applied in claim 1 above and further in view of Materne (US 6,156,822, of record). In describing the composition of the intermediate reinforcement layer, Sueyoshi and Hattori fail to suggest the use of additional filler components (in addition to carbon black), such as silica or modified carbon black, wherein surface-active groups (silica or aluminum) are present. In any event, it is extremely well known in the tire industry to include multiple reinforcing fillers in tire rubber compositions and furthermore, to modify the surfaces of either individual or multiple filler assemblies with hydroxy groups. For example, Materne describes a tire rubber composition in which fillers such as carbon black, precipitated silica, and other filler containing hydroxyl groups on their surface (e.g. aluminum doped precipitated silica and modified carbon black) are included (Column 5, Lines 9-14). The use of both silica and carbon black allows a given rubber composition to have enhanced reinforcement capabilities since the benefits of each filler can be realized. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a reinforcing assembly with (a) carbon black and doped silica (AlOH or SiOH) or (b) modified carbon black with AlOH or SiOH. It should

Art Unit: 1733

be noted that the use of surface agents is not limited to the tread portion since the increase in reinforcement capability is desired in all tire rubber components, including the intermediate layer of Sueyoshi and Hattori. As to the amount of reinforcing filler in the intermediate reinforcement layer, Sueyoshi and Hattori specify the use of approximately 50 phr of carbon black as the primary filler, suggesting that the use of an additional, well known reinforcing filler would be in amount less than 50 phr.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of (a) Sueyoshi, Beers, Carter, and Materne or (b) Hattori, Beers, Carter, and Materne as applied in claim 3 above and further in view of Nakamura (US 6,333,375, of record).

In this instance, the use of a secondary filler (silica having surface-active agents) in either Sueyoshi or Hattori would have been obvious to one of ordinary skill in the art at the time of the invention, as evidenced by Materne. While Materne fails to describe the BET specific surface area for the secondary fillers, the range of the claimed invention is extremely broad and defines conventional values for silica compounds used in the tire industry, as evidenced by Nakamura. In this instance, Nakamura suggests a silica filler having a preferred BET range of 100 to 250 m<sup>2</sup>/gram, more preferably 120 – 190 m<sup>2</sup>/gram (Column 12, Lines 21-32). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to include silica with the claimed BET surface area since the limitations of the claimed invention define well-known silica fillers that provide the necessary reinforcement capability.

Art Unit: 1733

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sueyoshi, Beers, and Carter as applied in claim 1 above and further in view of King (US 3,563,928, of record) and optionally in view of Hattori.

In describing the intermediate reinforcement layer, Sueyoshi suggests the use of a plurality of well known additives, including but not limited to sulfur, stearic acid, and antioxidants. However, Sueyoshi fails to suggest the use of a metal salt (cobalt, nickel, or iron) selected from the group consisting of (a) organic salts or (b) hydroxides in amount between 0.03 and 3 phr. In any event, metals salts represent a well-known additive that is conventionally used in tire rubber compositions to improve tackiness or adhesion characteristics, as evidenced by King (Column 2, Lines 10-14 and Lines 30-40). In particular, King discloses the use of an organic salt in the amount of 0.5 to 10 phr, which incorporates nearly the entire range of the claimed invention. Hattori is optionally applied to illustrate the known use of such additives in innerliner assemblies, it being noted that the additive is included in amount between 0.1 and 2 phr, which falls entirely with the range of the claimed invention. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a metal salt in the intermediate reinforcement layer of Sueyoshi, in view of King and optionally Hattori, for the benefits of improved tack. It should be lastly noted that the intermediate layer of Sueyoshi functions as a bonding agent for the innerliner and the adjacent rubber and as such, enhanced tack would be especially desirable

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of (a) Sueyoshi, Beers, and Carter or (b) Hattori, Beers, and Carter as applied in

Art Unit: 1733

claim 1 above and further in view of Gros (US 3,884,993, of record). In describing the intermediate reinforcement layer, Sueyoshi and Hattori describe the inclusion of carbon and additional well-known additives. While the references fail to expressly describe the use of kaolin (clay), kaolin is an extremely well known and conventional reinforcing filler that is extensively used in the tire industry, as shown for example by Gros (Column 6, Lines 38-47). In particular, it is known to include multiple reinforcing fillers, such as carbon black and kaolin, to optimize a wider range of properties/characteristics, including modulus and cost. Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the use of kaolin in the intermediate rubber composition and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include kaolin in the intermediate rubber composition of Sueyoshi and Hattori for the benefits detailed above.

### ***Response to Arguments***

9. Applicant's arguments, see Paper Number 15, filed October 8, 2003, with respect to the rejection(s) of claim(s) 1-13 under 35 U.S.C §103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sueyoshi and Hattori.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397** (if after December 22, 2003 (571) 272-1215). The examiner can normally be reached on M-F (7:30-4:00).


Art Unit: 1733

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Justin Fischer

November 4, 2003

  
JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300